1,2-DICHLOROETHANE

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Agency for Toxic Substances and Disease Registry ToxFAQs **September 1995**

This fact sheet answers the most frequently asked health questions (FAQs) about 1,2-dichloroethane. For more information, call the ATSDR Information Center at 1-888-422-8737. This fact sheet is one in a series of summaries about hazardous substances and their health effects. This information is important because this substance may harm you. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present.

SUMMARY: Exposure to 1,2-dichloroethane occurs mainly in the workplace. Breathing high levels of 1,2-dichloroethane damages the central nervous system, heart, liver, kidneys, and lungs. This chemical has been found in at least 493 of 1,416 National Priorities List sites identified by the Environmental Protection Agency.

What is 1,2-dichloroethane?

(Pronounced 1,2-dī′klôr′ō ĕth′ān′)

1,2-Dichloroethane is a manufactured chemical that is not found naturally in the environment. It is clear and has a pleasant smell and a sweet taste. It is also called 1,2-ethylene dichloride, dichloroethylene, or ethylene dichloride.

Its most common use today is to make vinyl chloride and other chemicals and to dissolve grease, glue, and dirt. It is also added to leaded gasoline to remove lead.

In the past, 1,2-dichloroethane was used in home products such as cleaning solutions and paint removers. It is rarely used in these products today.

What happens to 1,2-dichloroethane when it enters the environment?

- Most of it goes into the air during manufacturing or use.
- It evaporates very quickly from water into the air.
- In air, it is readily broken down by sunlight.
- It slowly breaks down in water.
- It can stay in groundwater for many years.
- In soil, it can be broken down within several months if another compound called methane is also present.

How might I be exposed to 1,2-dichloroethane?

- Breathing contaminated air in workplaces where it is used.
- Breathing contaminated air near factories where 1,2-dichloroethane is made or used.
- Breathing contaminated air near hazardous waste sites that contain the chemical.
- Drinking water from contaminated wells.
- Breathing contaminated air when using cleaning products or other products that contain 1,2-dichloroethane.

How can 1,2-dichloroethane affect my health?

Breathing high levels of 1,2-dichloroethane results in many harmful effects to people. It causes damage to the heart, central nervous system, liver, kidneys, and lungs.

These same effects have been seen in people who accidentally ingested high levels of the chemical.

We do not know the effects in people of breathing or ingesting lower levels of 1,2-dichloroethane over a longer period of time.

Studies in animals have found similar nervous system damage and kidney disease from breathing and ingesting the chemical. Other effects in animals include a reduced ability to fight infection. These effects have not been adequately studied in people.

Animal studies suggest that 1,2-dichloroethane is not likely to harm the ability to reproduce or cause an increase in the number of birth defects.

Animal studies show that direct contact with 1,2-dichloroethane can cause damage to the skin and eyes.

How likely is 1,2-dichloroethane to cause cancer?

The Department of Health and Human Services has determined that 1,2-dichloroethane may reasonably be anticipated to be a carcinogen.

Human studies are inconclusive. Several studies have not shown an increase in tumors in workers exposed to 1,2-dichloroethane. One study found an increase in colon and rectal cancer in people who drank contaminated water, but other chemicals were also present in the water.

There is good evidence from animal studies that ingesting large amounts of 1,2-dichloroethane causes an increase in a variety of tumors. In some animal studies, it caused cancer when breathed or absorbed through the skin.

Is there a medical test to show whether I've been exposed to 1,2-dichloroethane?

Tests are available that measure levels of 1,2-dichloroethane in breath, blood, breast milk, and urine. These tests are not usually available in a doctor's office. However, a sample taken in a doctor's office can be sent to a special laboratory if needed.

1,2-Dichloroethane leaves the body fairly quickly, so these tests are only good for exposures that occurred within the previous few days. The tests can't tell if an exposure will result in harmful effects.

Has the federal government made recommendations to protect human health?

The Environmental Protection Agency (EPA) has set a limit in drinking water of 0.005 parts of 1,2-dichloroethane per million parts of water (0.005 ppm). EPA requires that discharges or spills into the environment of 100 pounds or more of 1,2-dichloroethane be reported.

The Occupational Safety and Health Administration (OSHA) has set an occupational exposure limit of 50 parts of 1,2-dichloroethane per million parts of air (50 ppm) for an 8-hour workday, 40-hour workweek.

The National Institute for Occupational Safety and Health (NIOSH) has recommended an occupational exposure limit of 1 ppm of 1,2-dichloroethane for a 10-hour workday, 40-hour workweek.

Glossary

Carcinogen: A substance that can cause cancer.

Ingesting: Taking food or drink into your body.

ppm: Parts per million.

Tumor: An abnormal mass of tissue.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1994. Toxicological profile for 1,2-dichloroethane. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.

Where can I get more information? For more information, contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology, 1600 Clifton Road NE, Mailstop E-29, Atlanta, GA 30333. Phone: 1-888-422-8737, FAX: 404-639-6359. ToxFAQs Internet address via WWW is http://www.atsdr.cdc.gov/toxfaq.html ATSDR can tell you where to find occupational and environmental health clinics. Their specialists can recognize, evaluate, and treat illnesses resulting from exposure to hazardous substances. You can also contact your community or state health or environmental quality department if you have any more questions or concerns.